

Notice of Allowability

Application No.

10/612,657

Applicant(s)

LEWIS, MICHAEL

Examiner

R. Stephen Dildine

Art Unit

2133

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to ____.
2. ☒ The allowed claim(s) is/are 1-15.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 8 June 2004
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date ____.
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other ____.

R. Stephen Dildine
Primary Examiner
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An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

Page 4, line 5 "Figure 2" was changed to -- Figures 2a and 2b --,
page 12, line 5 "Figure 2" was changed to -- Figures 2a and 2b --,
page 14, line 20 "device 1" was changed to -- device 2 --, and
page 14, line 21 "device 2" was changed to -- device 1 --.

The claims have been amended as follows:

1. (currently amended) A method for limiting error propagation due to scrambler seed value transmission errors in a wireless communication network comprising at least one transmitting device (1) and at least one receiving device (2), wherein each transmitting device (1) has an associated transmitting address and each receiving device (2) has at least one associated receiving address, wherein each transmitting device (1) applies a forward error correction code to transmitted messages followed by scrambling of the message, and the scrambling is generated from a seed value, and each transmitted message is structured in such a manner that said seed value can be inferred at a receiving device (2) in the case of an error-free received message, the method comprising the steps of: providing state information at the transmitting device (1) for each message transmitted from said transmitting device (1) in such a manner that the transmitting device (1) can generate a sequence of seed values associated with each receiving address, providing state information at the receiving device (2) for each received message in such a manner that the receiving device (2) can generate sequences of seed values, each sequence associated with a unique combination of a transmitting address and a receiving address, the transmitting device (1) attempting to retrieve state information regarding a receiving address associated with the receiving device (2), if no state information is retrievable by said transmitting device (1) such state information is generated by an arbitrary method in order to generate a new seed value for a message to be transmitted, if state information is retrievable by said transmitting device (1), this information is utilized to initialize a first seed-generating algorithm in order to generate a new seed value for the message to be transmitted, and is updated by said algorithm, applying a scrambling algorithm initialized by the new seed value to said message to be transmitted, thereby creating a scrambled message, transmitting the scrambled

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message from said transmitting device (1), receiving and descrambling the scrambled message at said receiving device (2), based on the seed value deduced from the received message, checking the received descrambled message for errors that are not corrected by the forward error correction code, using received messages that are free from errors to synchronize a second seed-generating algorithm in said receiving device (2) with said first seed-generating algorithm in said transmitting device (1), using a current local seed value in said receiving device (2) to attempt to correct errors in the descrambled message caused by an incorrect received seed.

2. (currently amended) A method according to claim (1), wherein said receiving device (2) performing a search of some or all of the current local seed values of each seed sequence at the receiving device (2) and using each such seed value from the search in an attempt to correctly receive the message.

3. (currently amended) A method according to claim (1), wherein using said current local seed value in said receiving device (2) to synchronize said, second seed-generating algorithm in the receiving device (2) with said first seed-generating algorithm in said transmitting device (1), if the message is free from errors following the attempt to correct errors in the descrambled message caused by an incorrect received seed.

4. (currently amended) A method according to claim (1), wherein said first seed-generating algorithm at the transmitting device (1) generating the same sequence of seed value as said second seed-generating algorithm at the receiving device (2), when correctly synchronized.

5. (currently amended) A method according to claim (1), further comprising the step of determining the next seed value in said sequence of seed values at the transmitting device (1) from at least the current seed value.

6. (currently amended) A method according to claim (1), further comprising the step of causing said first seed-generating algorithm at said transmitting device (1) to move to the next seed value in said sequence of seed values at the transmitting device (1) and update the state information for said receiving address for each transmitted message.

7. (currently amended) A method according to claim (1), further comprising the step of causing said second seed-generating algorithm at said receiving device (2) to move to the next seed value in said sequence of seed values at the receiving device (2) and update the state information for said transmitting and receiving addresses for each correctly received message.

8. (original) A method for limiting error propagation due to scrambler seed value transmission errors in a wireless communication network the method comprising the steps of: providing state information at a transmitting device for each message transmitted from said transmitting device, providing state information at a receiving device for each received message, attempting to retrieve state information by the transmitting device regarding a receiving address associated with the receiving device, if no state information is retrievable by said transmitting device such state information is generated by an arbitrary method in order to generate a new seed value for a message to be transmitted, if state information is retrievable by said transmitting device, this information is utilized to initialize a first seed-generating algorithm in order to generate a new seed value for the message to be transmitted, and is updated by said algorithm, applying a scrambling algorithm initialized by the new seed value to said message to be transmitted, thereby creating a scrambled message, transmitting the scrambled message from said transmitting device, receiving and descrambling the scrambled message at said receiving device, based on the seed value deduced from the received message, checking the received descrambled message for errors that are not corrected by a forward error correction code.

9. (original) A method according to claim 8, further comprising the steps of using received messages that are free from errors to synchronize a second seed-generating algorithm in said receiving device with said first seed-generating algorithm in said transmitting device, using a current local seed value in said receiving device to attempt to correct errors in the descrambled message caused by an incorrect received seed.

10. (original) A method according to claim 9, wherein said receiving device performing a search of some or all of the current local seed values of each seed sequence at the receiving device and using each such seed value from the search in an attempt to correctly receive the message.

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11. (original) A method according to claim 9, wherein using said current local seed value in said receiving device to synchronize said second seed-generating algorithm in the receiving device with said first seed-generating algorithm in said transmitting device, if the message is free from errors following the attempt to correct errors in the descrambled message caused by an incorrect received seed.

12. (original) A method according to claim 9, wherein said first seed-generating algorithm at the transmitting device generating the same sequence of seed value as said second seed-generating algorithm at the receiving device, when correctly synchronized.

13. (currently amended) A method according to claim 9, further comprising the step of determining the next seed value in said sequence of seed values at the transmitting device (1) from at least the current seed value.

14. (currently amended) A method according to claim 9, further comprising the step of causing said first seed-generating algorithm at said transmitting device (1) to move to the next seed value in said sequence of seed values at the transmitting device (1) and update the state information for said receiving address for each transmitted message.

15. (currently amended) A method according to claim 9, further comprising the step of causing said second seed-generating algorithm at said receiving device (2) to move to the next seed value in said sequence of seed values at the receiving device (2) and update the state information for said transmitting and receiving addresses for each correctly received message.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Guanella (3,439,279) shows synchronizing pseudo random sequence generators, Kondo et al. (6,493,842) shows a system and method for the time-varying randomization of a signal stream to provide for a robust error recovery, Wachtfogel et al. (6,848,051) shows a method for determining that all of a scrambled message has been successfully received, the scrambled message being scrambled in accordance with a scrambling key and being capable of being descrambled in accordance with a descrambling key, descrambling key generating information for generating the descrambling key being included within a control message (ECM) associated with the scrambled message and Kasamura et al. (JP 2005151056) shows CRC in conjunction with scrambling.

The following is an examiner's statement of reasons for allowance: None of the cited references teach or fairly suggest a transmitting device attempting to receive state information regarding a receiving address associated with a receiving device (as in applicant's claims 1-7) or attempting to retrieve state information by a transmitting device regarding a receiving address associated with a receiving device (as in applicant's claims 8-15).

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to R. Stephen Dildine whose telephone number is (571) 272-3820. The examiner can normally be reached on M - F 5:30 am to 2:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



R. Stephen Dildine

R. Stephen Dildine
Primary Examiner
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